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KP-892, Part 1

UNION CARBIDE NUCLEAR COMPANY

Production Division

UNCLASSIFIED

AREA 5 PROGRESS REPORT
JUNE THROUGH AUGUST, 1955

G. T. E. Sheldon

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INTER-COMPANY CORRESPONDENCE

(INSERT
NAME) COMPANY CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P
OAK RIDGE, TENN.

TO Mr. H. G. P. Snyder
LOCATION K-303-8

DATE September 22, 1955

ANSWERING LETTER DATE

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SUBJECT AREA 5 PROGRESS REPORT
JUNE THROUGH AUGUST, 1955

KP-892, Part 1

The following report is a summary of special work activities and improvements in Area V for the period June through August, 1955.

PPU Changes in K-306-7

A Taylor recorder for measurements of side and tops purge flow rates was installed on the PPU control panel replacing the Bristol telemetering system previously employed. Pneumatic signals are obtained from the K-312-1 and K-312-3 unit control panels. A non-pressure-compensated integrator for summation of tops purge is being tried and appears to give results of sufficient accuracy to permit elimination of the present method of planimetering flow charts daily.

The 2-inch jet on the PPU housings evacuation header was replaced with a 4-inch jet to obtain sufficient capacity for evacuation of housing ambient within reasonable time. The air supply line to the jet was sized upward to one and one-half inches and an air-operated diaphragm valve with control air regulated through a solenoid valve was installed. The solenoid circuit may be energized from either the PPU panel or the PW area on the cell floor. Three "always-safe" alumina traps were added to the evacuation system to insure adequate contact time.

A reconditioned valve with a CV of 0.6 was installed in the column feed line replacing the automatic control valve tried previously (CV = 0.05). Feed through the control valve has been successful and the feeding operation simplified. To permit reduced time interval for feed to the still column, it was necessary to insure that the material in the freeze-out cylinders was sufficiently high in temperature at the beginning of feed operations on the day shift. This was accomplished by revising the procedure for cooling and venting of cylinders after product freeze-out. No adverse change in final product purity was apparent.

New aluminum rupture discs were installed on the vent relief lines of all freeze-out cylinders, and the 'B' bank vent relief header rupture disc was changed.

A one-half inch monel line for leak testing and conditioning was tied into the two-inch vent relief header from the C-216 charging line on bank C. A by-pass with peanut valve was installed around

Mr. H. G. P. Snyder

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the two-inch vent line rupture disc.

A tie was made which permits flow of PW cylinder "toppings" to K-306-7.4, upstream of the product cell, instead of through the PW return header which had caused considerable disturbance at the product cell.

A solenoid valve for liquid level control was installed in the coolant supply line to the surge drum of the Freon-12 refrigeration system.

Switches for the product withdrawal line valve motors were relocated to the PPU control station and a HF load recorder for K-306 Section power was installed.

Purge Instrumentation Modifications

An orifice calibration manifold for the tops purge flow metering equipment was installed in the K-312-3 cold trap room as a remedy for the difficulty experienced recently in obtaining true purge rates. Partial plugging of the orifice had resulted in false indication of high purge rates and the plugging could not be readily detected.

The transmitters on the K-312-2 cold trap purge flow instrumentation were replaced with instruments with ranges identical to those of side and tops purge instruments.

Area Pressure Fluctuations

Spring-loaded PBC's were installed on the cells of K-305-12, completing the area program of instrumentation changes for pressure fluctuation control.

Cooler Installation

The program of removal of plugged coolant coolers was continued with the changeout of coolers in K-306-4, cells 2 and 4, and K-306-1, cells 1 and 3. The water control valves had been 100 per cent open.

An oil cooler was re-installed in the K-305-12 lube system. Operation without the cooler had resulted in oil supply temperature of 146°F during the summer months.

H. F. Goocher
for G. T. E. Sheldon

GTES:HFG:jm